

AN ANALYSIS OF PROFESSIONAL LACROSSE LEAGUE  
INSTAGRAM ACCOUNTS AND HOW THEIR MANAGERS  
USE VARIOUS FORMS OF CONTENT TO ENGAGE  
AUDIENCES

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## **Introduction**

For the major professional sports leagues in North America, social media is a helpful, supplemental tool to reach audiences. Fans of the leagues can tune in to games on television and can see coverage in print and online, making social media a secondary way of consuming the sport. When newer professional sports leagues with smaller audiences — like Major League Lacrosse (MLL) and the National Lacrosse League (NLL) — use social media, however, the league accounts can sometimes be the only way fans can interact with the league and follow along year-round, as the product is in limited markets for in-person viewing and has a minimal presence on television and in the news media. For the purposes of this study, Major League Lacrosse will be written as its commonly known acronym, MLL. The National Lacrosse League will be written as NLL.

The origins of lacrosse in North America pre-date the founding of both the United States and Canada (Childs, 2015). The First Nations people created the game in its first form, played on vast, sometimes miles-long fields as a way to entertain and even solve tribal disputes. While amateur lacrosse existed in North America after the settlers arrived, it was not until 1986 that the first professional league was founded. Called “Eagle Pro Lacrosse” (NLL, 2016) in the 1980s, the league has added and folded a number of teams in various markets under its new label of the NLL. Today, the NLL boasts 10 teams in (Atlanta) Georgia, Buffalo (New York), Rochester (New York), Vancouver (British Columbia), (Saskatoon) Saskatchewan, (Denver) Colorado, Toronto (Ontario), Calgary (Alberta), and New England (Uncasville, Connecticut). In December 2018, expansion franchises in San Diego (California) and Philadelphia (Pennsylvania) will begin play.

The other league, Major League Lacrosse, didn't begin play until 2001, two years after Jake Steinfeld, the founder of "Body by Jake", conceived of an outdoor lacrosse league (MLL, 2017). Similar to the NLL, the MLL has added and dropped a number of franchises over the years. The league now has nine teams in Rochester (New York), (Columbus) Ohio, (Long Island/New York City) New York, (Orlando) Florida, Denver (Colorado), Chesapeake (Baltimore/Annapolis, Maryland), Charlotte (North Carolina), Boston (Massachusetts), and Atlanta (Georgia).

The leagues play different versions of the game of lacrosse. The NLL plays indoor lacrosse, or box lacrosse, which is played on a field the size of a hockey rink with boards and glass enclosing the playing surface. The teams play in indoor stadiums. The rules are slightly different, and all players play with the same, three-foot sticks except the goaltender. The MLL, on the other hand, plays field lacrosse, which is played on a surface that more resembles a soccer field. Defenders in field lacrosse are permitted to use six-foot sticks, while offensive players use the same sticks as do box lacrosse players.

While the rules and equipment vary from league to league, the leagues share athletes and fans. Many of the MLL's stars also play for NLL teams and vice versa. This is possible because the NLL plays from December to May, and the MLL plays from May to August.

Professional lacrosse's reach when compared to the major professional sports leagues like the NFL is small. According to league data reported by NFL rights-holder ESPN, 16.5 million people watched each NFL game on average in 2016, down 8 percent from 2015. These games can be seen on major networks like FOX, CBS, NBC, and ESPN and are widely available to viewers (Rovell, 2017). While viewership data for the two lacrosse leagues is not publicly available, the games are mostly broadcast through online, subscription streaming platforms. The

NLL produces its own broadcasts on NLL.TV and the MLL partners with Lax Sports Network (LSN) to broadcast all of its games. In 2018, before this study was conducted, MLL agreed to broadcast one game each week on ESPN+'s streaming platform, which is still a subscription service, limiting its reach. Some of the individual teams also broadcast games on regional cable sports networks in their markets as well, but national broadcasts are nearly nonexistent, with just one or two MLL games airing on CBS Sports Network each summer. As part of the ESPN deal, the 2018 MLL Championship game was broadcast on ESPNNEWS.

Considering the disparity in game availability between the aforementioned lacrosse leagues and the major professional sports, the two North American professional lacrosse leagues must utilize social media in an attempt to grab the attention of their casual and committed fans.

According to Dan Pentresca, the Content Marketing Specialist for the MLL, Instagram is the league's preferred social medium as a way to interact with fans. (Pentresca, 2017) Pentresca cited the visual elements of Instagram and the relatively young age of its users as two of the primary reasons why his marketing team at the MLL focuses on Instagram as a social tool.

Pentresca's expressed goal of social media usage is to engage fans around the league's content, which can prove helpful in keeping fans engaged (Di Gangi and Wasco, 2016). However, while social media content studies have examined media like Twitter (Lovejoy, Waters and Saxton, 2010) and Facebook (Coelho, Oliveira, Almeida, 2016), scholarship about Instagram content is scarce. Although some Instagram studies do exist, they tend to focus on aspects like hashtags (Carah and Shaul, 2016) or user motivations (Lee, Lee, Moon and Sung, 2015).

By determining what kinds of Instagram content creates the most interaction among fans of the accounts for the MLL and the NLL, social media managers for smaller, less visible

leagues can better understand the best way to garner interaction and potentially help their leagues cultivate a more engaged, younger fan base through Instagram.

This study will analyze Instagram posts from both league accounts. Once collected, the posts will be coded into predetermined categories before the number of likes and comments are counted. Once counted, the study will explore what kinds of posts garner the most interaction, which will lead to a conclusion about the best strategy for Instagram use to augment engagement.

Overall, this study aims to gain insight into the best practices for social media strategy for these two niche professional sports leagues by determining the best way to promote them on Instagram.

### **Literature review**

Intense competition, commercialization, failing trust, and user participation have all been described as reasons the current journalistic environment is changing so rapidly (Bowd, 2016). In Kathryn Bowd's piece, she examines the shifting nature of journalism and how fragmented audiences have made traditional styles of journalism less feasible in the social media era (2016). Bowd particularly takes an interest in audience fragmentation. She argues that the digital media has broken into smaller and smaller pieces, allowing users to immerse themselves in niches. While traditional journalism used to provide exposure for companies, brands and, in this case, sports leagues, exposure for leagues like the Major League Lacrosse (MLL) and the National Lacrosse League (NLL) can now be driven internally.

Dan Pentresca, the Content Marketing Specialist at MLL said his league's social media use, in general, is a "huge focal point" for its overall marketing strategy (Pentresca, 2017). One reason Pentresca found social media effective was because it was economical for his league.

It's free. We are reaching people at no cost. Tens of thousands of people at a time and it's totally free. It makes sense for every league, but for a league our size, with limited budgets and stuff like that, you have to take advantage of getting in front of your fans at no cost. (Pentresca, 2017)

The MLL is not alone. Businesses are increasingly shifting away from only using traditional, one-way delivery of their products or services to consumers and instead are finding a way to gleam intangible value based on user engagement through methods like social media (Gangi, et al. 2016).

Pentresca (2017) went on to add that the MLL is "a smaller league, so we feel our fans can have a more intimate experience through social media," (Pentresca, 2017). As for the MLL's choice of social media, it's the "trendy" Instagram (Pentresca, 2017). The MLL is active on both Twitter and Facebook as well, but its Instagram following of 124,000 (Instagram, 2017) dwarfs its Facebook and Twitter followings. For the NLL, on the other hand, its Facebook following is still the largest at over 131,000, but its Instagram following of 61,400 beats its Twitter following of 43,000. A study conducted in 2013 by Nielsen found Instagram to be the fastest growing app that year (Lee et al. 2015).

Between 2010 and 2015, 30 billion photos have been shared on Instagram, and its users "like" content on the site 2.5 billion times per day (Lee et al. 2015). The same study showed that 53 percent of 18-29 year olds use Instagram and nearly half (49 percent) use it daily (Lee et al. 2015). When compared to Facebook's 1.37 billion daily active users (Facebook, 2017), Instagram does not stack up, but Instagram's 500 million daily active users (Etherington, 2017) now eclipses Twitter's estimated 157 million (Twitter does not release daily active user numbers) and Snapchat's 166 million (Wagner, 2017). According to ComScore's 2017 U.S. Mobile App Report, Instagram has the fifth most unique visitors (meaning new visitors, not counting returning visitors) among 18-24 year olds, behind YouTube, Facebook, Facebook

Messenger and Snapchat (Lipsman et al. 2017). Other studies show 79 percent of people have taken more photographs since they started using social media with 64 percent of people believing a visual post is more “convincing” on social media than a text-only post. Also, 85 percent of people say they prefer visual posts to text-only posts (Wang, 2016).

Part of Instagram’s effectiveness stems from when it took hold in the technological world. Launching in 2010, the platform was designed specifically for smartphones. According to the 2017 U.S. Mobile App Report, half of all digital media time is spent on smartphones, a number that jumps to two-thirds among 18-23 year olds (Lipsman and Lella, 2017). On average, adults spend 2.3 hours on smartphone apps per day, while the younger adults, between ages 18 and 24, spend 3.2 hours on their smartphones, taking up more than an eighth of every day (Lipsman and Lella, 2017). In 2015, adults spent an average of 68.2 hours on smartphone apps monthly, translating to just over 2 hours per day (ComScore, 2016). In 2016, that number increased again to 73.8 hours per month (ComScore, 2016). The same study showed that of those 73.8 hours, 20 percent were spent on social networking alone (ComScore, 2016).

In 2017, Instagram was the sixth most popular smartphone app, with 50 percent of adult smartphone users having it. Only Facebook, Facebook Messenger, YouTube, Google, and Google Maps were more popular on adult smartphones than Instagram. Additionally, 11 percent of millennials (ages 18-34) say they “can’t go without” the Instagram app on their smart devices (Lipsman and Lella, 2017).

As users are taking notice of the Instagram app, so are businesses. A 2016 study from the *Online Information Review* showed 65 percent of the world’s leading brands had an account on Instagram in 2013, saying, “small businesses found a cheap way to promote and sell their products,” (Coelho, et al. 2016).



For example, an article from a 2015 edition of the *Mobile Media and Communication Journal* looked into the ways Smirnoff Vodka, an alcohol brand, and General Pants, a fashion retailer, utilized Instagram to engage their audiences. The study showed that the brands were able to “create value without any dedicated advertising or analytics tools,” because Instagram is an “image machine that captures and calibrates attention,” (Carah and Shaul, 2015). The MLL wants its fans to attend games and watch them on television or online (Pentresca, 2017), which requires attention, so by engaging its audience frequently through a visual medium like Instagram, Carah and Shaul’s study shows the MLL could call this attention unto itself in an inexpensive way.

At the MLL, their content marketing team has noticed the same trend. While the MLL boasts rosters of the world’s greatest lacrosse players, the league’s lack of television exposure and news coverage leaves some casual fans in the dark about the product on the field. With Instagram, however, Pentresca and the MLL believe they are getting more of their product in front of more eyeballs, saying, “Anything visual is always better. An acrobatic goal, a video clip of a goal, some kind of graphic that is attention grabbing.” (Pentresca, 2017) Through highlight videos, action photos and infographics, the MLL staff is able to take fans directly to the action and show them why they believe the game is great.

We tried to do a little more with video content this year, showing more plays on our social feeds. We think the best asset we have is the players and the games themselves. We want to show people the speed and intensity of our league.  
(Pentresca, 2017)

For the MLL marketing team, these posts often lead to user interactions, which is the expressed goal of its social strategy. “I would say, in general, good highlights and the game graphics are good conversation starters (Pentresca, 2017). Creating engagement among fans is especially important for leagues like the MLL and NLL. Unless there is a team in your market, getting to games can be a tall task. Additionally, for the fan that wants to tune in to games on

television or online, doing so requires a subscription to each league's streaming service, creating another barrier to entry for fandom. In order to get people to travel to games or subscribe to their streaming services, MLL and NLL rely on their fans being engaged enough with the product to seek it out in the form of video and live games.

The MLL and the NLL are the two highest levels of lacrosse in the world, boasting rosters of the best American and Canadian athletes from both field and box lacrosse. While the two leagues, and their social media accounts, aim to engage and attract more fans, the leagues have not kept up with the growth of the sport in the United States. In 2001, 253,931 athletes played lacrosse at all ages in the United States through U.S. Lacrosse. That number grew each year between 3.4 percent in 2012-2013 and 16.7 percent in 2003-2004. In 2015, the total participation number was 802,044, an approximately 215 percent change (U.S. Lacrosse, 2015).

In the MLL, five teams began play in the league's inaugural season (MLL, 2017). For the 2017 season, nine teams played, marking an 80 percent increase. The NLL also saw disproportionate growth. The league started with four teams in 1987. In 2001, the league had nine teams across the U.S. and Canada, reaching as many as 13 teams in 2007. Today, however, the league only has six teams, although expansion franchises in San Diego and Philadelphia are set to begin play in the 2019 season (NLL, 2017). Including San Diego and Philadelphia, the NLL has only seen an approximately 22 percent increase in teams since 2001, when U.S. Lacrosse started collecting participation data.

Without the television visibility or the mainstream media coverage of other major sports leagues, the MLL and NLL need to utilize the broad audiences and inexpensiveness of social media like Instagram. Since media like Facebook and Twitter have woven themselves into everyday life, studies have examined everything from Twitter's utility in combating cigarette use

(Prochaska et al., 2012) to social media's propensity for user engagement surrounding popular television shows (Barbour, 2016) to Facebook's perceived impacts on the 2008 Presidential Election (Carlisle and Patton, 2013). While these studies shed light on cultural impacts of social media, visual media, like Instagram, are often skipped over by academics even as more companies are finding extra utility for their businesses on the platform.

While the two lacrosse leagues are finding more use from their Instagram accounts (Pentresca, 2017), scholarship about Instagram is lacking. Instagram has exceeded Twitter in the amount of daily active users (Lee, et al. 2015), but social media scholarship studies focus on Twitter and Facebook 64.6 percent of the time, leaving just 28.12 percent for the rest of social media including YouTube, LinkedIn, Pinterest and Instagram. The remaining social media scholarship examined message boards and programs like Pinterest and Weibo (Abeza, et al. 2015). Given the "significant concentration of the sport management research" (Abeza, et al. 2015) focusing on Twitter and Facebook, more studies about Instagram are warranted.

Beyond what platform to examine, the 96 studies analyzed in the *Journal of Sport Management* focused on different ways of how to examine social media like Instagram. According to the study, 24 percent of social media scholarship examined the platforms "as a tool," which is lower than studies regarding the "nature" of social media or defining its constructs (Abeza, et al. 2015). By digging deeper into the way social media could be utilized by the MLL and NLL, these businesses could find insight into the best ways to engage their audiences. Therefore, more research regarding Instagram as a driver of fan engagement is needed to better understand its utility for companies and sports leagues. In this study, analysis of hundreds of Instagram posts from these two professional lacrosse league accounts will show social media

managers a statistical breakdown of which types of posts garner the most engagement from their followers and fans.

Finally, the *Journal of Sport Management* article also noted a lapse in the way studies gauge user interaction. The article examined nearly 100 social media studies into sport management. In its conclusions, the article expressed a need for variance in the way academics study social media. The researcher noted that studies of interaction lump all interaction together, including comments and likes, but the study recommends avoiding that practice. "Future studies need to factor in the differences in behavior exhibited by social media users and differences by users' level of involvement should be accounted for," (Abeza, et al. 2015). In this study, comments and likes will be calculated and analyzed separately, as comments signal a greater level of engagement than do likes on Instagram posts.

Since this study was completed, another study was published by Information, Communication, and Society called Show me a story: narrative, image, and audience engagement on sports network Instagram accounts (Romney and Johnson, 2018). While only tangentially related, Romney and Johnson did look into sports-related Instagram comment, but from the perspective of the sports networks, not the leagues themselves. They found that posts capitalizing on narratives or storytelling were more engaging for their audience. While the same ideas were not explicitly found in this study, the content analysis showed Instagrammers were more likely to engage with posts featuring star players' faces and championship performances.

Instagram and social media scholarship is part of an "emerging field of research," (Abeza, et al. 2015). However, Instagram's growing following and ability to connect visually with audiences makes it a powerful tool for many businesses without major marketing budgets and teams. Therefore, studying the way marketing departments are using Instagram accounts to

connect with fans could help illuminate the opportunities available to businesses by using the platform.

Given the need for new research about Instagram's utility, this study seeks to answer the following question:

RQ1: What types of Instagram posts garner the most interaction in the form of likes and comments?

### **Method**

The goal of the study was to collect and code Instagram posts from the accounts of Major League Lacrosse (MLL) and the National Lacrosse League (NLL) and identify the number of likes and comments of each post. Once done, the study showed which category of Instagram post is interacted with most often.

The study stemmed from a pilot study conducted in October and November of 2017 on the same two accounts over a one-week time period. Approximately 50 posts were analyzed from each league. The pilot study differs from the final study in that it only coded for photos, graphics and videos. The pilot study showed that the graphics category had the most posts and also demonstrated that some of the graphics were very different in style, creating the need for the photos plus category.

Given the scarcity of existing Instagram research, this study sought information to cultivate best practices as it relates to engagement on Instagram.

To do this, 200 Instagram posts from both the NLL and the MLL were analyzed to see if photos, graphics, videos or some combination of these garner more interaction from followers than the others.

## **Sample**

In the world of North American lacrosse, the NLL and MLL represent the best of the best. Fifteen teams make up the two leagues, representing some of the hotbeds of lacrosse interest throughout the continent. For the purposes of this study, these two leagues and their Instagram accounts comprised the data in an effort to find a relationship between the type of Instagram posts they publish and the amount of engagement they receive.

The study focused on 200 posts for each league which ends with the last post on the final day of each league's season, which is marked by the awarding of the league's championship in 2017. A pilot study of the same two accounts during the 2017 offseason yielded approximately 50 posts for each league in the span of one week, so 200 posts should make up around one month of Instagram posting. Also, analysis by post number is an equalizer, as accounts often post with different frequencies, as evidenced by Carah and Shaul's (2015) study into Instagram posts and hashtags, where they examined only 100 posts.

The NLL began play in December 2017 with its concluding championship series occurring in June. This study examined each post starting with the final post on June 11, the day the Georgia Swarm won the championship and goes back 200 posts from there. The MLL did not begin play until May, with its championship game taking place on August 19. This study examined the 200 posts prior to the Ohio Machine's championship win that day.

## **Coding**

In order to distinguish which types of posts garner the most interaction, this study coded each post to classify it as one of a photo, a photo plus, a graphic, or video.

### *Photo*

Instagram posts coded as photos are any still image posted on which there is no graphic overlay. For instance, images of a player running on the field or carrying a flag out of the tunnel were considered photos. Photos can be of anything from a ticket stub to a photo of fans in the stadium.

### *Photos plus*

Posts coded as photos plus are photos with some sort of graphic overlay that is not the focal point of the image. If the graphic element makes up less than 50 percent of the image, it was coded as photos plus. This distinction is important because, as the pilot study showed, images with graphics are the most common post types. This section is meant for photos with logos, watermarks or small chyrons with player names or limited statistics.

### *Graphics*

Posts were coded as graphics if the focal point of the image is the graphic itself. If the image is more than 50 percent graphic, it was coded as such. For instance, both leagues often post game information before the game is played including the two teams playing, the time the game was played, how to watch online and how to get tickets. These posts were coded as graphics. Additionally, the league often posts in-game score updates and post-game score graphics. While many of these graphics have photos underneath the graphic elements, any graphic overlay making up more than 50 percent of the image was labeled a graphic, not photos plus.

### *Video*

Any and all video content was coded as video. Videos are any motion pictures posted onto either of the team accounts.

## *Galleries*

On Instagram, users can now post galleries of images. In the event that all items in the gallery are photos, graphics or videos, it was classified as such. Otherwise, whichever type (photo, photo plus, graphic, or video) is featured most often in the gallery determined how the post is classified. In the event of a tie, where two or three types are featured the same amount of times, the first image, which is first seen by users scrolling through Instagram, was the tiebreaker.

## **Reliability**

In order to determine the reliability of the coded content, the study calculated Scott's Pi to establish inter-rater reliability.

The same posts analyzed the first time were re-analyzed and coded for during a second round by a co-coder. The results were input into a Scott's Pi to ultimately determine reliability.

## **Validity**

To ensure the validity of the study, the following steps were taken to determine its results.

First, 200 posts from the NLL's official league Instagram account were analyzed ending with the final post on June 11, 2017, the day the championship was awarded. The same process was undertaken for the MLL's official Instagram account ending with its championship game on Aug. 19, 2017.

Once collected, the posts were analyzed within six months after the conclusion of the MLL season, in February 2018, allowing for half of a year of follow up interactions from followers.



The study used Microsoft Excel to chart the posts and code them accordingly. On the spreadsheet, the first column demonstrated which account the post is from, showing either a 1 or a 2. This column was labeled “League”. In this study, 1 represented a post from the MLL’s account and a 2 represented the NLL.

The next column represented the type of post and was labeled “Type”. Based on the coder’s determinations, they coded each of the posts as either 1, 2, 3 or 4. In this study, 1 represented a post coded as a photo. 2 represented a post coded as a photo plus. 3 represented a post coded as a graphic and 4 represented a post coded as a video.

The column after the “Type” column charted the amount of likes each post receives on Instagram. Labeled “Likes”, the column tracked the amount of likes each post receives. Next comes the “Comments” column, which charted the number of comments on each post in the study.

In this document, each row represented one post, allowing the coders to easily input their determinations of the post types and allowed the study to keep track of the number of likes and comments for each one.

In addition, the data from the two individual leagues was also separated in a different spreadsheet. This action was taken to allow for further analysis of each league’s posting habits to see if more information regarding best practices can be gleamed from their individual habits.

Below is an example of how the data was input to Excel during data collection. The data below do not correspond to actual posts, but are just examples of how the content will be layed out in the study.

Table 1:

League	Type	Likes	Comments
1 (MLL)	1 (photo)	1,512	5
2 (NLL)	2 (photo plus)	1,280	2
1	3 (graphic)	850	8
2	4 (video)	1,950	14

Finally, the study concluded with a contextual analysis of the top performing posts. Once the comments and likes for each post were tabulated, the study examined the 10 posts that garnered the most interaction to see what particular attributes they each contain that may have made them particularly engaging. This information helped the study offer a suggestion of best practices regarding Instagram usage.

#### *Analysis*

After all data is collected in Microsoft Excel, the study transferred that data to IBM's SPSS data analysis software for further analysis and examination.

First, the study conducted an Anova test to determine if the means between the photo, graphic and video groups are statistically different. In this study, the "Comments" and "Likes" columns represent the dependent variables while the "Type" column acts as the independent variable.

After the Anova test, a chi square test was employed to determine if the categories of photos, graphics, and videos are statistically different from one another and which post types, on average, garnered the most engagement. (Cohen and Sackrowitz, 1976).

This study served as an effort to answer the question, what types of Instagram posts garner the most interaction in the form of likes and comments? The data analysis did that, showing if the number of likes and comments is correlated with the type of post from the NLL and the MLL during the three-month span.

## **Results**

This study examined the characteristics of Instagram posts for two North American professional lacrosse leagues. While Instagram is an increasingly popular social medium, second only to Facebook, studies about the platform are not as prevalent. The study examined 400 posts to see which performed best in terms of likes and comments.

Ultimately, the study sought to answer this research question: What types of Instagram posts garner the most interaction in the form of likes and comments?

In order to test the research question, a descriptive analysis was run using SPSS.

### **Data Reliability**

To establish data reliability, a Scott's Pi analysis examined all 400 posts. The co-coder had two posts coded differently than the original coding, signaling a 99.4% reliability. This test requires some human analysis and decision-making in order to code the individual Instagram posts. The reliability of 99.4% suggests the code was easy to decipher for both the initial and the secondary coder.

The study examined 200 posts from both the @nll and @Majorleaguelacrosse accounts, the findings of which are in Tables 1, 2, and 3.

Each post was coded as a photo, a photo +, a graphic, or a video. Photos are still images with no graphic element. A photo becomes a photo + when a graphic element is overlaid on the

image but is less than 50 percent of the image. A graphic is when the graphic element makes up more than 50 percent of the image and a video is when the post is a video or motion picture.

**Table 1:**

*Anova Test*

*-Showing significance between types of Instagram posts as they relate to likes and comments.*

		Sum of Squares	df	Mean Square	F	Sig.
Likes	Between Groups	37226629.100	3	12408876.370	11.814	<b>.000</b>
	Within Groups	415932846.300	396	1050335.470		
	Total	453159475.400	399			
Comments	Between Groups	13326.288	3	4442.096	1.232	<b>.298</b>
	Within Groups	1428203.462	396	3606.574		
	Total	1441529.750	399			

In the Anova test, there is a significance ( $p = 0.000$ ) between the photo, photos plus, graphic, and video groups as it relates to the likes each post receives. Also, ( $p = 0.298$ ) between groups as it relates to comments, meaning there was not a significant difference.

After the Anova test showed a difference among post types as it relates to likes, a post-hoc analysis was utilized to show which categories differed from each other. In Table 2, photos, photos +, graphics, and videos are compared to each other. A Least Significant Difference test was employed to compare the means between the likes and comments for each post type. For comments, there was no significant difference between the post types, but there was a difference between post types for likes.

The Least Significant Difference test showed, for likes, photos are significantly different than photos plus ( $p = 0.000$ ) graphics ( $p = 0.002$ ), and video ( $p = 0.000$ ). All of the other groups are statistically similar, according to the Least Significant Difference test.

In order to see how the photo types were different than the others, a descriptive analysis was used using SPSS in Table 3.

**Table 2:***Multiple comparisons*

*-This table shows each post type as compared to the other three and the significance of the difference for each.*

Dependent Variable	(I) types	(J) types	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Likes	Photos	Photos +	586.92065*	156.67126	.000	278.9092	894.9321
		Graphics	517.72177*	164.60054	.002	194.1216	841.3219
		Video	792.95807*	133.94220	.000	529.6314	1056.2848
	Photos +	Photos	-586.92065*	156.67126	.000	-894.9321	-278.9092
		Graphics	-69.19888	169.72284	.684	-402.8693	264.4716
		Video	206.03742	140.18922	.142	-69.5707	481.6456
	Graphics	Photos	-517.72177*	164.60054	.002	-841.3219	-194.1216
		Photos +	69.19888	169.72284	.684	-264.4716	402.8693
		Video	275.23630	148.99823	.065	-17.6901	568.1627
	Video	Photos	-792.95807*	133.94220	.000	-1056.2848	-529.6314
		Photos +	-206.03742	140.18922	.142	-481.6456	69.5707
		Graphics	-275.23630	148.99823	.065	-568.1627	17.6901

The descriptive analysis showed the means in each post category. For comments, the means were already determined to be statistically insignificant by the Anova test (see Table 1).

On average, the most liked posts by the MLL and NLL accounts during the combined 400 final posts of their 2017 seasons were photos at 1,984, graphics at about 1,466, followed by photos plus at 1,397, and videos earning the least number of likes on average at 1,191.

This result was unsurprising because of Instagram's roots as a photo medium. It was always a photo-centric social medium and it is designed to be easy to use as it relates to photos. Liking video is possible on the platform, but liking photos is much easier.

**Table 3***Descriptive analysis*

-This table shows the average number of likes and comments for each of the categories, effectively outlining which types of posts garner the most engagement.

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
						Lower Bound	Upper Bound	
Likes	Photos	92	1983.9457	1114.75403	116.22114	1753.0866	2214.8047	387.00
	Photos +	80	1397.0250	720.89329	80.59832	1236.5981	1557.4519	420.00
	Graphics	67	1466.2239	701.02470	85.64380	1295.2305	1637.2172	238.00
	Video	161	1190.9876	1197.28664	94.35941	1004.6370	1377.3381	221.00
	Total	400	1460.6775	1065.71011	53.28551	1355.9221	1565.4329	221.00
Comments	Photos	92	5.8913	9.54510	.99515	3.9146	7.8680	.00
	Photos +	80	10.8000	31.61173	3.53430	3.7652	17.8348	.00
	Graphics	67	3.9403	4.77011	.58276	2.7768	5.1038	.00
	Video	161	17.8882	91.49679	7.21096	3.6473	32.1291	.00
	Total	400	11.3750	60.10704	3.00535	5.4667	17.2833	.00

**Content Analysis**

The top-five posts (in terms of likes) were analyzed for each lacrosse account from the study sample. For each post, the study looked at the qualities of each image or video to try to glean what about them resonated with audiences and to see if patterns existed.

**@NLL posts****Post 1: Photo of captain lifting trophy (Photo)**

- This post earned 2,115 likes and six comments. It was the most-liked post of the 200 analyzed for the NLL account.
- It is a still photo, slightly edited, with the captain featured without his helmet on and lifting the trophy. It is slightly edited with blurring on the sides of the image.
- The caption contains one @ mention and three hashtags.
- As shown in Figure 1.

**Figure 1:**



*Highest performing @nll post*

Post 2: Video of championship winning goal (Video)

- This post earned 1,742 likes and 10 comments. It was a video of the goal that earned the Georgia Swarm the Champion's Cup and the ensuing celebration.
- The caption contains two @ mentions and three hashtags.
- A screenshot of the video is shown in Figure 2.

**Figure 2:**



*Second most-liked @nll post*

Post 3: Maryland Terrapins national championship congratulations (Photo)

- This post earned 1,739 likes and no comments.

- The post is a photo of the University of Maryland Terrapins after they won the 2017 Men's Lacrosse National Championship. It is a still image of the team celebrating with the trophy after the win. The photo features players without their helmets on.
- The caption contains two @ mentions and three hashtags.
- As shown in Figure 3.

**Figure 3:**



*Third most-liked @nll post, interestingly featuring no NLL players or teams*

Post 4: Championship final score (Photo +)

- This post earned 1,656 likes and nine comments.
- It shows three Georgia Swarm players celebrating a goal in black and white and shows the final score game graphic along the bottom.
- The caption contains two @ mentions and two hashtags.
- As shown in Figure 4.



**Figure 4:**



*Fourth most-liked NLL post. Three of the top five were posted the night of the championship including this one.*

Post 5: Boy wins promotional giveaway stick (Video)

- This post earned 1,565 likes and 37 comments.
- The post is a video that shows a young boy finding out he is the recipient of an Evo Warp, which is a lacrosse stick. The video is of his celebration. The video features a non-player.
- The caption contains one @ mention and six hashtags.
- A screenshot of the video is shown in Figure 5.

**Figure 5:**



*The fifth most-liked post for @nll focuses on the Warrior Evo Warp, a stick produced by one of NLL's promotional partners. This boy just received a free one.*

## @MajorLeagueLax

Post 1: Gary Gait running onto field (Photo)

- This post earned 5,661 likes and 30 comments.
- The still photo is of one of the greatest players of all time, Gary Gait. He is featured without his helmet on.
- The caption contains no @ mentions or hashtags.
- As shown in Figure 6.

**Figure 6:**



*Highest performing @mll post*

Post 2: Myles Jones East Coast Dies (Video)

- This post earned 5,403 likes and 624 comments.
- The post is a video centered around Myles Jones, one of the only African-American players in lacrosse and also one of the most popular. It is a cross promotion between the league and East Coast Dyes, an equipment company. The video features a player without his helmet on.
- The caption contains two @ mentions and two hashtags.
- A screenshot of the video is shown in Figure 7.

**Figure 7:**



*Second most-liked post on @majorleaguelacrosse includes one of the sport's rising stars, Myles Jones. The video partnered with East Coast Dyes, a very popular Baltimore-based brand.*

**Post 3: Conner Buczek All Star Game fastest shot (Video)**

- This post earned 5,363 likes and 31 comments.
- The video shows Conner Buczek at the MLL All-Star Game skills challenge shooting the ball 112 miles an hour and winning the fastest shot competition. The video shows the athlete without his helmet on.
- The caption contains one @ mention and one hashtag.
- A screenshot of the video is shown in Figure 8.

**Figure 8:**



*The third most-liked @majorleaguelacrosse post was a video from the MLL Skills Competition at All Star weekend in Sacramento.*

#### Post 4: Greg Gurenlian retirement ceremony (Photo)

- This post earned 5,228 likes and 10 comments.
- The post is a still photo of one of the greatest lacrosse players of all time giving his retirement speech after a game. The photo features a player without his helmet on.
- The caption contains one @ mention and one hashtag.
- As shown in Figure 9.

**Figure 9:**



*The fourth most-liked @majorleaguelacrosse post comes from legendary face-off man Greg Gurenlian's retirement ceremony.*

#### Post 5: Tucker Durkin vs. Lyle Thompson one on one (Video)

- This post earned 3,848 likes and 21 comments.
- This video is of a one on one between the best offensive player and the best defensive player in the league. It shows a goal. Both players are fully equipped and in gameplay.
- The caption contains two @ mentions and one hashtag.
- A screenshot of the video is shown in Figure 10.

**Figure 10:**



*The fifth most-liked post for @majorleaguelacrosse shows a great 1-on-1 battle between two of the games' best.*

### **Content analysis findings**

The content analysis shed further light on the qualities of posts that perform well in terms of engagement.

For one, the images and videos where star athletes are featured happened to be top performers. For instance, in the @majorleaguelacrosse posts, young superstar midfielder Myles Jones' video for popular equipment company East Coast Dyes performed the best. In post two, popular player Greg Gurenlian was featured. That post received over 5,000 likes as well. Gary Gait's post had the highest number of likes with 5,661. Both Gurenlian and Gait are widely regarded as some of the best players at their positions making them popular among fans. Some say Gait was the "best to ever play the game," (Inside Lacrosse, 2012) and Gurenlian is the only faceoff specialist to ever win MLL player of the year (Shore, 2017).

Besides featuring very popular athletes, many of the posts featured athletes not playing in actual gameplay. Obvious among the 10 analyzed posts were that the athletes, most of them stars, were featured without helmets on, giving audiences a look at their faces in a sport where the players are largely covered in equipment and helmets with facemasks. In the @nll account, a still image of the captain of the winning Georgia Swarm team lifting the trophy after taking off

his gear was one of the most-liked images (see Figure 1). Also, a congratulatory post for the NCAA Champion Maryland Terrapins featured the team celebrating after their win — also without their helmets on.

Another common characteristic of the high performing posts are the @ mentions and hashtags. Most of the posts contained one of each. The posts often featured a popular player or his team with an @ mention, which wouldn't necessarily boost engagement on the post considering Instagram doesn't have a re-blog or retweet tool like Twitter within the app (There are external apps that do this). However, the posts often contain more than one hashtag, which can be used to spread engagement. On Instagram, users can follow a hashtag like they do an account, so if someone were to follow #NLL, they could discover these posts. The @NLL account posts #NLL in each of its high performing posts.

Another throughline of these high performing posts are the immediacy of them. In eight out of the 10 posts examined, the post was published the day of the event it depicts. In some of the @NLL cases it was the day of the championship game when the NLL was fresh on the user's mind. In other cases, it was a highlight clip of something in the game that happened that day.

## **Discussion**

This study set out to answer the following research question:

RQ1: What types of Instagram posts garner the most interaction in the form of likes and comments?

After analyzing the results of the study, it is clear that photo posts garner the most engagement due to the statistical significance between the types in terms of likes on average.

Comments, however, were statistically insignificant, but video posts averaged more comments than the other categories.

Beyond the categorization of the posts in terms of photos, photos plus, graphics, and videos, however, a content analysis showed specific characteristics that help posts perform well in terms of likes. Those characteristics include @ mentions, hashtags, star athletes, and athletes' faces.

These findings stem from a specific set of 400 Instagram posts in 2017 between @nll and @majorleaguelacrosse, and the data collected can help social media managers of those two accounts better engage their audiences. While the study was specific to professional lacrosse, these findings could suggest a trend or tactic that social media accounts could follow in order to boost follower engagement. However, each entity is unique so results cannot be directly applied.

MLL and NLL have smaller audiences than do major organizations like the NFL. Through social media, however, the league accounts can be an important, free, easy way for fans to connect with the league and follow along year-round. In MLL and NLL, for example, the product is in limited markets, making in-person viewing difficult. Its minimal presence on linear television and in the mainstream news media also makes it harder for these leagues to grow.

For major, well-known leagues or organizations, their product is on display on national television regularly, and the media attention keeps the sport and league fresh on the minds of consumers. Considering the disparity in game availability between the aforementioned lacrosse leagues and other professional sports, the two North American professional lacrosse leagues must use social media to permeate the lives of fans — both casual and committed.

The inspiration for this study stemmed from a conversation with Dan Pentresca, the Content Marketing Specialist for the MLL. During the 2017 interview, Pentresca said Instagram

quickly became the league's preferred social medium. He said the visual elements of the medium and its relatively young demographic of users made it a useful tool for his team as they marketed the product of the MLL.

For those reasons, determining what kinds of Instagram content creates the most interaction among fans of the MLL and NLL, social media managers for smaller, less visible leagues can better understand the best way to potentially help their leagues cultivate an engaged fan base.

### **Post type**

The statistical analysis of the study showed that post type makes more of a difference for the number of likes ( $p=.000$ ) than it does for comments ( $p=.298$ ). The study concluded that photos, averaging 1,984 likes per post, were the most engaging types of posts in terms of number of likes. Graphics came next at 1,466 on average, followed by photos plus with an average of 1,397 and video posts averaging 1,191.

In terms of number of likes, photos garner the most engagement; therefore, based on this data, social media managers should emphasize still photos with no graphic element on their accounts in order to drive user engagement.

While not a statistically significant difference, video content performed the best in terms of comments on average, just slightly better than photos-plus posts. This data shows, albeit inconclusively, that posting a video could help drive conversation on an Instagram page.

### **Content analysis**

When the highest-performing posts in terms of likes were analyzed for each Instagram account, a number of consistencies were identified.



First, images and videos where star athletes are featured performed best. Superstars like Gary Gait, Lyle Thompson, and Myles Jones headlined some of the highest-performing posts considered in the content analysis. The study shows that highlighting the best-known athletes on the Instagram account's posts can help drive engagement. Unfortunately, there is no way to know the motivations behind an Instagram like, but these characteristics were all consistent among well-liked posts.

Second, many of the top-performing posts pictured athletes off the playing field. Whether they were accepting the trophy, exercising by themselves, or warming up, the majority of the most-liked posts occurred outside of actual lacrosse gameplay. By showing these athletes without their helmets on and off the field, fans could feel like they are getting an inside look at the athletes and the game of which they are a fan. Picturing or featuring athletes off the field proved engaging and could be a useful strategy for social media managers.

Third, save for one, nine of the posts analyzed in the content analysis featured an @ mention of another account and a hashtag. Most of the posts contained one of each. @ mentions could help other prominent accounts see the post, but there is no official re-post tool on Instagram that would further engage audiences. (Instagram does have such a feature, but it is a separate application and was therefore not directly considered in this study. Also, of the 400 posts analyzed, none were re-posted.) Hashtags, however, have more utility on Instagram now. Instagram recently created a feature allowing people to follow hashtags. With each hashtag, the post is disseminated to a new following of people, making them more valuable to increasing engagement on Instagram. This is an important tool for social media managers to employ.

Hashtags are one way to reach beyond the account's followers, but there is also an opportunity to utilize sponsored content or boosted posts on Instagram's platform, which puts

posts in front of non-followers. When using such content, social media managers should employ the same strategies this study recommends for non-paid posts.

Finally, immediacy played an important role in the level of engagement too. The 10 analyzed posts all depicted something that happened that day, so timeliness of the posts proved to be a factor in engagement. This, however, is also a limitation of the study, as Instagram's algorithm changed in 2018 making the platform non-chronological. Therefore, the most recent posts don't appear on a user's feed first. Instead, the feed is re-organized every time the app is opened. In terms of how a social media manager should apply this finding, it is unclear, but posts that happen to appear on someone's feed could still stand to benefit from being timely. It is not, however, guaranteed that the user will see that post at the time it is posted.

Overall, by emphasizing use of photo posts to garner more likes and employing star athletes, off-field activity, hashtags and timely posts, social media managers for niche leagues and organizations can drive more engagement among their followers.

### **Future research and limitations**

As is, this study serves as a solid first step for future and expanded research on the topic of Instagram engagement. By breaking down what types of content garners the most engagement for a niche interest like the world of lacrosse, this study allows future ones to dive contextually deeper.

One opportunity for future research would be to examine comments more thoroughly. No significant statistical difference was discovered among the number of comments on each type of post, but comments are an important form of engagement and a greater form in some ways. For one, comments are more time-consuming to create, and they lack anonymity. In this study,

comments were most likely to be found on video posts. It would be interesting to see how those comments change from post to post, and it would be helpful to see if the same people are commenting on the posts or if posts are generating unique commenters.

Another limitation of this study has to do with Instagram's technical design. For instance, knowing the time of day of each post would help fill out the content analysis section of this study. Knowing if an image was posted late at night, early evening or early morning would help the researcher further understand how to garner the most engagement on Instagram. However, that data isn't readily available for all posts, so some coordination with Instagram would likely be necessary.

To gain a wider understanding of the types of Instagram content that engages audiences, a study with a broader scope could help as well. This study focuses on the professional lacrosse world, but a similar study could be replicated to touch wider swaths of society. For example, a similar study could be completed using major sports accounts like ESPN and compared to other parts of the world like Sky Sports in the U.K. or their equivalents around the world. The study could also branch out of the sports world and into news, entertainment, weather, business and many more kinds of accounts.

Finally, this study could benefit from a detailed look at engagement as it relates to growth. It would be interesting to examine whether engaging content on the platform actually yields more followers or if it simply engages the current ones. Doing this would require a large amount of data analysis in real time to see if accounts that like images or videos then, in turn, follow the account if they do not already.

Another notable limitation in the study are some recently announced developments in the landscape of professional lacrosse. In October, 2018, Bloomberg published an article citing

anonymous sources saying Paul Rabil, a star in both the MLL and NLL, will leave the MLL to start his own, touring lacrosse league. The article also said Rabil has commitments from around 100 other players to join him. Since then, Rabil and his new PLL have been officially announced. The league will begin play in June 2019. This new development could change the makeup of the MLL, which is currently the dominant professional outdoor lacrosse league. The fragmentation of the player pool in the MLL could fragment the fan base and, subsequently, its social media following as well. However, the addition of another league leaves open an opportunity for further research, too.

These suggestions for future research could benefit leagues like the MLL or any niche business looking to engage its audience on social media.

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## Appendix

Appendix 1: An example of data collected from pilot study in SPSS. In total, the study examined 400 posts. These are 22 examples of how each post was categorized by type (1-4), number of likes and comments and to which league (1 or 2) each post belongs.

	 Day	 Type	 Likes	 Comments	 League
1	1.00	2.00	1640.00	4.00	1.00
2	1.00	2.00	2004.00	4.00	1.00
3	1.00	1.00	1699.00	6.00	1.00
4	1.00	1.00	1938.00	3.00	1.00
5	1.00	3.00	2492.00	3.00	1.00
6	1.00	3.00	2728.00	13.00	1.00
7	1.00	2.00	1664.00	10.00	1.00
8	2.00	2.00	1509.00	1.00	1.00
9	2.00	3.00	2889.00	2.00	1.00
10	2.00	3.00	2392.00	4.00	1.00
11	2.00	2.00	1673.00	5.00	1.00
12	3.00	2.00	2400.00	.00	1.00
13	3.00	2.00	2344.00	4.00	1.00
14	3.00	2.00	1563.00	.00	1.00
15	3.00	2.00	1565.00	1.00	1.00
16	3.00	2.00	1946.00	2.00	1.00
17	4.00	1.00	2795.00	9.00	1.00
18	4.00	2.00	1503.00	3.00	1.00
19	4.00	2.00	1562.00	.00	1.00
20	4.00	3.00	2052.00	7.00	1.00
21	4.00	3.00	3421.00	3.00	1.00
22	4.00	2.00	1624.00	3.00	1.00